IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

The Application of :	
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"System and method of getting for a bicycle and other pedal-driven vehicles mechanical energy output exceeded muscular energy input due to the gravitational Lever"	

Background

The present invention is a Logical completion of the sub-systems, which are described in the U.S. Patents 5,921,133A; 6,363,804 B1; 6,601,478 B2 as a system for transformation gravitational energy into mechanical energy without loss a power and distance, due to the gravitational Levers (GL).

The action of a "GL" makes one rotatable part of a sub-system turn faster than another rotatable part.

Here is a quotation from the U.S Patent No. 6,601,478 B2 (see col. 7 Lines 58-61): " in this case the outer force on the Long shoulder of the "GL" is the Long shoulder itself, because it tends to keep itself vertical, due to the gravitation". And (see col. 8, Lines 8-9): " it means that "GL" gains in distance, but it doesn't lose in power, because it power is gravitation".

In the present invention the same function carries out gravitational Lever as one of two pedals, which is powered by gravitational and muscular forces and because of that keeps itself vertical during rotation. Such combination of power actions supported also by pedal strap as an important part of a pedal in this case.

Such system, having one gravitational pedal, works more reliable and economical special when the speed of rotation and centrifugal forces are increasing.

The transmissions of a new speedy bicycle and other pedal-driven vehicles were tested in a laboratory since 1999, after the patent No. 5,921,133 was published.

The positive results are the first step for a large-scale production of a new pedal-driven vehicles.

Summary of the Invention

Accordingly, it is an object of the present invention to provide a new system and method of getting for a bicycle and other pedal-driven vehicles mechanical energy output exceeded muscular energy input due to the gravitational Lever.

In keeping with these objectives and with other, which will become apparent hereinafter, one feature of the present invention resides, briefly stated, in a system and method of getting for a bicycle and other pedal-driven vehicles mechanical energy output exceeded muscular energy input due to the gravitational Lever, which have a first rotatable unbalanced element, as a receiver of power from two different sources of energy, such as a muscular energy and a gravitational energy, which are effected on a pedal convert themself into mechanical energy for a transmission of the driving power via second one-way rotatable element, and a third opposite way rotatable element, to a forth rotatable element as a support for the first and second rotatable elements.

The third and fourth elements are fixed to a crank's axle and rotate with it, as well as a driving sprocket of a vehicle for transmission of the driving power via the chain to the freewheel and then to a drive wheel of a vehicle, where is in the course of normal forward motion of the pedals the first rotatable element being connected to a fourth rotatable element by means of a rotatable axle, rotates clockwise together with a fourth element around the fourth element axle of rotation and at the same time rotates counter-clockwise around itself geometric axle of rotation together with a real axle, which is connected both of rotating elements to each other, while the second rotatable element being connected to the first rotatable element by means of the overrunning clutch and to the third rotatable element by

means of a toothing, rotates around the third and fourth elements axle of rotation clockwise, as well as a first element, and at the same time the second element rotates around its own axle of rotation counter-clockwise, and due to that, makes the third and fourth elements rotate faster than in case of their rotation without interaction between the second and third rotatable elements as a kinematic couple, so that the third and fourth elements as one increase it speed automatic without additional outer force, due to the combined power actions into close kinematic path of the all rotatable elements from the first to the fourth and from the fourth to the first again etc.

The method of the invention includes the steps of interaction between four rotatable elements, which are powered by two different sources of energy, such as muscular energy and gravitational energy into close kinematic path and due to that mechanical energy output exceeded muscular energy input.

The invention itself, however, both as to its construction and as to its manner of operation, will be best understood from the following description of a preferred embodiment, which is accompanied by the following drawings.

Brief Description of the Drawings

Fig. 1 is a top view of a schematic representation of a System and method of getting for a bicycle and other pedal-driven vehicles mechanical energy output exceeded muscular energy input due to the gravitational Lever.

Fig. 2 is a view according to the arrow "A" of the System shown in Fig.1.

Fig. 3 is a view according to the arrow "B" of the System shown in Fig. 1.

Description of a Preferred Embodiment

A system and method of getting for a bicycle and other pedal-driven vehicles mechanical energy output exceeded muscular energy input due to the gravitational Lever is fixed to a driving sprocket for a rotation with it around crank's axle "I-I" in the course of normal forward motion of the pedals, one of which is making a difference [Fig. 1] First of all, the pedal 1 performs three Functions: getting power from two different sources of energy, such as a muscular energy and a gravitational energy, which are, by means of a pedal 1 convert themself into mechanical energy; transmission of the driving power via the rotating axle 2, overrunning clutch 3, combined with a sprocket 4, having [Fig. 2] a certain kinematic interaction with a chain periphery 6 of disk 5 to the driving sprocket and via the chain to a freewheel and driving wheel of a vehicle; transmission of the driving power straight on the driving sprocket of a vehicle without kinematic interaction between sprocket 4 and chain periphery 6 of a disk 5, as a kinematic couple. A section of pedal 1 has a contour of a spherical sector as shown in Fig.3. Practically such design is a gravitational Lever, which is in combination with a pedal strap 7 provide the pedal 1 keeping itself vertical during rotation together with the axle 2 around the crank's axle I-I. It means that in the course of normal forward motion of the pedals, they are rotating clockwise around axle I-I and at the same time they are rotating counter clockwise around its geometric axle of rotation II-II.

The sprocket 4 is powered by gravity weight of a "GL" as an special pedal 1 and by muscular force of a foot, which is supported also by strap 7 and rotates counter-clockwise, while disk 5, having chain periphery 6, rotates clockwise, same way as a pedal, but faster than pedal 1 itself. The power for disk 5, and its chain periphery 6 goes from sprocket 4 by means of overrunning clutch 3.

The kinematic relations between the sprocket 4 and chain periphery 6 of a disk 5 is as follows: during one revolution the disk 5 with a driving sprocket outstrips the crank 8 with a pedal 1 for one radius of the disk 5 because the length of circle of the sprocket 4 is equal to the radius of disk 5 with a chain periphery (according to a working model). "GL" as a pedal 1 starts make an additional turn of the disk 5 (and same of the driving sprocket) during a ride of pedal-driven vehicle by means of a sprocket 4 combined with overrunning clutch 3. As a result of a special kinematic interaction (closed kinematic path) crank 8 starts to increase its speed automatic without getting for that more power from outside source of